

L4 ANSWER 1 OF 5 CA COPYRIGHT 1998 ACS  
AN 125:157290 CA  
TI Analysis of surface impurities of semiconductor substrate  
IN Fukazawa, Juji  
PA Tokyo Shibaura Electric Co, Japan  
SO Jpn. Kokai Tokkyo Koho, 4 pp.  
CODEN: JKXXAF

PI JP 08160032 A2 960621 Heisei  
AI JP 94-303375 941207  
DT Patent  
LA Japanese  
IC ICM G01N033-00  
ICS G01N031-00; H01L021-66  
CC 79-6 (Inorganic Analytical Chemistry)  
Section cross-reference(s): 76

AB The title method comprises the steps of: forming dissocn. soln. contg. HF and O<sub>3</sub> on the substrate surface, migrating the soln. through the substrate surface, and analyzing the dissocn. soln.

ST surface analysis impurity semiconductor substrate

IT Semiconductor materials  
Surface analysis  
(anal. of surface impurities of semiconductor substrate)

IT 7664-39-3, Hydrogen fluoride, analysis 10028-15-6, Ozone, analysis  
RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
(anal. of surface impurities of semiconductor substrate)

- (HF-O<sub>3</sub>-H<sub>2</sub>O) soln,  
Used to remove  
metallic impurities

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AN - 90-340319/00  
XRAM- C96-109621  
XRPX- N96-290619

TI - Analysis of impurities on semiconductor substrate surface - by applying hydrofluoric acid and ozone-contg. soln. to substrate and analysing impurities formed in soln. quantitatively and qualitatively.

DC - L03 S03 U11

PA - (TOKE ) TOSHIBA KK

PR - 94.12.07 94JP-303375

NUM - 1 patent(s) 1 country(s)

PN -- JP08160032 A 96.06.21 (9635)

AP -- 94JP-303375 94.12.07

IC1 - G01N-033/00

IC2 - G01N-031/00 H01L-021/66

AB - JP08160032 A

The analysis process comprises applying HF and O<sub>3</sub> contg. soln. onto surface of the semiconductor substrate, transferring soln. to contact surface of the semiconductor substrate, analysing transferred soln. for quantitative and qualitative measurement of impurities adhered to semiconductor surface.

ADVANTAGE - For analysis of impurities on the surface of semiconductor substrate, with high sensitivity and accuracy.

FN - WPG7EG71.GIF (Dwg.1/2)

-5- (JAPIO)

AN - 96-160032

TI - ANALYSIS OF IMPURITIES ON SURFACE OF SEMICONDUCTOR SUBSTRATE

PA - (2000307) TOSHIBA CORP

IN - FUKAZAWA, YUJI

PN - 96.06.21 J08160032, JP 08-160032

AP - 94.12.07 94JP-303375, 06-303375

SO - 96.06.21 SECT. , SECTION NO. ; VOL. 96, NO. 6.

IC - G01N-033/00; G01N-031/00; H01L-021/66

JC - 46.2 (INSTRUMENTATION--Testing); 42.2 (ELECTRONICS--Solid State Components)

FKW - R004 (PLASMA); R115 (X-RAY APPLICATIONS)

AB - PURPOSE: To analyze impurities on the surface of a semiconductor substrate with high sensitivity and high accuracy.

CONSTITUTION: An HF aq. soln. or HF vapor is supplied from a line 15 while an O<sub>(sub 3)</sub> aq. soln. or O<sub>(sub 3)</sub> gas is supplied from a line 16 to

form an HF/O<sub>(sub 3)</sub> dissolving soln. 17 on the surface of a semiconductor

substrate 12 and this semiconductor substrate 12' is subjected to rotary motion by a drive mechanism 14 to allow the dissolving soln. 17 to tumble

on the surface of the semiconductor substrate 12. The impurities present on the surface of the semiconductor substrate 12 are dissolved in the dissolving soln. 17. This dissolving soln. 17 is collected by a pipette to be analyzed by a flameless atomic absorption device. By adding HF and O<sub>(sub 3)</sub> to the dissolving soln. 17, an oxidation film is efficiently formed on the surface of the semiconductor substrate 12 by the oxidizing force of O<sub>(sub 3)</sub> and the impurities on the surface of the semiconductor substrate are taken in the oxidation film. Thereafter, since the oxidation film is dissolved by the dissolving force of HF without etching

the semiconductor substrate 12, the kind and amt. of the impurities bonded to the surface of the semiconductor substrate 12 can be measured with high sensitivity and high accuracy.

102 - (88-89)

(HF-O<sub>3</sub>-H<sub>2</sub>O)

NC

(HF-O<sub>3</sub>-H<sub>2</sub>O)<sub>Soln</sub>

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DIALOG(R)File 351:DERWENT WPI  
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WPI Acc No: 77-30226Y/197717

Removing organic photoresist film from silicon semiconductor wafer - by  
contacting with inorganic acid soln. and ozone

Patent Assignee: HITACHI LTD (HITA )

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Main IPC	Week
JP 77012063	B	19770404					197717 B

Priority Applications (No Type Date): JP 7334544 A 19730328

Abstract (Basic): JP 77012063 B

The film adhered to the silicon wafer is contacted with inorganic  
acid soln. and simultaneously jetted with ozone.

The process is a photographic technique for removing photo-resist  
film from a silicon wafer after developing.

Derwent Class: G06; L03; U11; U12

International Patent Class (Additional): H01L-021/30

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